

Customer No.: 31561
Docket No.: 10894-US-PA
Application No.: 10/604,796

In The Specification:

Please amend paragraph [007], [008], [009], [010] as follows:

[0007] The invention provides a microcontroller device for extending memory address space by inserting a waiting state, so that when the device (micro-controller) is using the bus, there is no need of decoder. The resource of the micro-controller and the fabrication cost can be saved. In addition, the variable program can be stored in the external memory, so as to simplify the ROM.

[0008] The invention provides a microcontroller device for extending memory address space by inserting a waiting state, wherein the invention arranges the memory interface controller to insert a waiting state to the CPU, when the CPU intends to execute a first program instruction of the external memory.

[0009] The invention provides an operation method on a microcontroller device for extending memory address space by inserting a waiting state. The method includes inserting a waiting state to the clock signal of the CPU when the address of the program instruction to be accessed is located out of a predetermined address range. The state is not changed until the program instruction is completely fetched.

[0010] The invention provides a microcontroller device for extending memory address space by inserting a waiting state. The device includes a ROM, a CPU, and a memory interface controller. Wherein, the device is a micro-controller and is coupled to an external memory, which has stored a first program, through a bus.

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Please amend paragraph [017] as follows

[0017] The invention provides an operation method on a microcontroller device for extending memory address space by inserting a waiting state. The operation method includes, first, setting a predetermine address range for the device. A memory interface controller judges whether or not an address of a program instruction, which is to be fetched, is located within the predetermined address range. If the memory interface controller judges that the address of the program instruction, which is to be fetched, is located out of the predetermined address range, the memory interface controller inserts a waiting state into the CPU, so that the clock state of the CPU is not changed until the program instruction is completely fetched. Otherwise, if the memory interface controller judges that the address of the program instruction, which is to be fetched, is located within the predetermined address range, the CPU directly fetches the program instruction. The CPU then executes the program instruction being fetched, and repeating the foregoing process until the execution is stop.

Please amend paragraph [018] as follows

[0018] Since the invention uses the device of extending the memory address space by inserting a waiting state, when the device (micro-controller) is coupled to the bus of external memory, the serial bus can be used. The serial bus can reduce the number of connection pins of the device, so that the decoder is not necessary to be implemented. At the same time, the resource of micro-controller and the fabrication cost can be saved.